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May 31, 2001*

Donna Weiting
Chief, Marine Mammal Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3226

RE: [Docket No. 990927266-9266-01 ; I.D. 072699A]
RIN 0648-AM62 Taking Marine Mammals Incidental to Navy Operations of
Surveillance Towed Array Sensor System Low Frequency Active Sonar

Dear Ms Weiting:

To grant a "small take permit," NMFS has to find that the activity won't "take" more than a small number of marine mammals within a specified area and won't have more than a negligible impact on any particular species or stock.

The Navy has previously predicated a "small take" on the basis that a received level of 180 dB would be relatively safe: only mammals inside a 1-kilometer mitigation zone would possibly be killed or injured. This was based on a model, rather than direct tests, where whale hearing was calculated to be damaged with repeated exposure to 180-dB sound.

We now know the lethal range extends beyond a 1 kilometer because the lethal threshold is lower than 180 dB and the impact on marine mammals will be MUCH higher that projected by the Navy.

New information is available as a result of the strandings of several species of beaked whales in the Bahamas that were the direct result of a mid-frequency sonar tests. These were at exposure levels as low as 160 dB. The lower level where hemorrhaging/tissue damage occurred was apparently due to resonance in air cavities of the whales. (1,2)

It should be noted that resonance phenomena can occur with lesser energy requirements than for non-resonance. The fundamental frequency of a gas volume is that frequency at which it is most susceptible to excitation.

Such issues, calculations and mathematical modeling of potential target species are completely absent from the FEIS. Given the stringent requirements for the FEIS to make due regard to scientific process, these omissions raise grave concern about the overall accuracy and validity of the EIS.

It is the Navy's responsibility in this permitting process to ensure that the NMFS has information sufficient to make these judgments. Clearly the Navy has failed and, on this point alone, needs to withdraw or be refused a permit.

The Navy has recently argued that the two sonar systems, low- and midlevel frequency, are so different that it is entirely unfair to link the two. However, physicist Lee Tepley, PhD, and others have examined resonance buildup of low frequency SURTASS LFA signals in air cavities of mammals and concluded that this could occur for LFA frequencies at received levels as low as 160 dB . (3)

For LFAS as well as mid range sonars, Dr. Tepley shows it takes only milliseconds for the resonance to buildup in air spaces - contrary to what Joe Johnson said. Lee also calculates the perturbation of cell tissue in these air cavities; showing it is a dangerously large fraction of typical cell dimensions. For typical LFAS operation, Lee notes the cetacean may be hit by about 2000 oscillations before the frequency is changed. This can be deadly, contrary to what Mr. Johnson said.

In addition, Dr. Tepley has identified other phenomena that, like resonance, could result in mammals dying at much lower Receiving Level's than 180 dB.

Because the lethal range extends beyond a 1 kilometer mitigation area, and because the Navy's failed in it's responsibility to produce an EIS that included information needed by NMFS to make these judgments on

resonance phenomena, I respectfully request that the Navy's permit for taking marine mammals incidental to Navy operations of SURTASS LFA Sonar be denied

Sincerely yours,



Marjorie Ann Erway

References

(1) Letter to Mr. Mr. J.S. Johnson, dated 2/23/2001 from Ken Balcomb.

(2) L Tepley, "Possible Mechanisms for Strandings of Beaked Whales", see <http://home1.gte.net/leetpley/lfasummary.html>

(3)) L Tepley, "Air-space Resonances and Other Mechanisms Which May Cause Tissue Damage in Cetaceans" see <http://home1.gte.net/leetpley/lfasummary.html>